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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/Gradation/2015-16

06.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.B. Umesh,**
#385, Bettaulsur (P), Bangalore North Taluk.

Name of Work : Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015

Date of Testing : 06.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	135	135	2.7	97.3	95-100
22.4	1560	1695	33.9	66.1	60-80
11.2	985	2680	53.6	46.4	40-60
4.75	635	3315	66.3	33.7	25-40
2.36	485	3800	76.0	24.0	15-30
0.600	425	4225	84.5	15.5	8-22
0.075	485	4710	94.2	5.8	0-8

Note:

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06.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.B. Umesh,**
#385, Bettaulsur (P), Bangalore North Taluk.

Name of Work : Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015

Date of Testing : 06.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	165	165	3.3	96.7	95-100
22.4	1505	1670	33.4	66.6	60-80
11.2	1025	2695	53.9	46.1	40-60
4.75	785	3480	69.6	30.4	25-40
2.36	525	4005	80.1	19.9	15-30
0.600	355	4360	87.2	12.8	8-22
0.075	320	4680	93.6	6.4	0-8

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06.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

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Agency : **Mr. B.B. Umesh,**
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Name of Work : Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015

Date of Testing : 06.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	155	155	3.1	96.9	95-100
22.4	1590	1745	34.9	65.1	60-80
11.2	1080	2825	56.5	43.5	40-60
4.75	750	3575	71.5	28.5	25-40
2.36	455	4030	80.6	19.4	15-30
0.600	325	4355	87.1	12.9	8-22
0.075	385	4740	94.8	5.2	0-8

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Reference : EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015

Date of Testing : 06.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	190	190	3.8	96.2	95-100
22.4	1605	1795	35.9	64.1	60-80
11.2	1125	2920	58.4	41.6	40-60
4.75	655	3575	71.5	28.5	25-40
2.36	480	4055	81.1	18.9	15-30
0.600	330	4385	87.7	12.3	8-22
0.075	365	4750	95.0	5.0	0-8

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06.03.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	06.03.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	386	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	303	
4	Aggregate Impact value = percent fines	21.76	21.91	
	100* (W_2/W_1)%			**21.83**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/AIV/2015-16

06.03.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
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Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	06.03.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	80	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	302	
4	Aggregate Impact value = percent fines	21.05	21.15	
	100* (W_2/W_1)%			**21.10**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/S-T/2015-16 06.03.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of Work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	06.03.2015

Result : Flakiness Index = **11.98%**

Elongation Index = **13.60%**

Result : Combined Flakiness & Elongation index 25.58%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/S-T/2015-16 06.03.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of Work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	06.03.2015

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **12.38%**

Elongation Index = **13.80%**

Result : Combined Flakiness & Elongation index 26.18%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No: CTCE/BBMP/W.No.09/BBU/CSR-04/813n/SDBC(QB)/2015-16 15.04.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
*NAME OF THE WORK	:	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	:	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	13.04.2015
PERIOD OF TESTING	:	15.04.2015

The results of the tests conducted on the bitumen sample using for Semi Dense Bituminous Concrete.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	86	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	43	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	296	Min. 220

*Information is furnished by the Customer/Representative.

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VIDYARANI P.K.
Technical Manager

****

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/AIV/2015-16 15.04.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.04.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	303	303	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.30	21.50	21.40

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Aggregate Impact Value

IS: 2386 Part IV

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Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.04.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.82	22.02	**21.92**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Aggregate Impact Value

IS: 2386 Part IV

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Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.04.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	390	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	88	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	303	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.56	22.70	22.63

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Shape_T/2015-16 15.04.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of Work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.04.2015

Result : Flakiness Index = **12.32%**

Elongation Index = **13.60%**

Result : Combined Flakiness & Elongation index **25.92%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Shape_T/2015-16 15.04.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
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Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.04.2015

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.68%**

Elongation Index = **13.20%**

Result : Combined Flakiness & Elongation index **24.88%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Shape_T/2015-16 15.04.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of Work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.04.2015

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **13.25%**

Elongation Index = **13.90%**

Result : Combined Flakiness & Elongation index **27.15%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

Note:

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Stripping/2015-16 17.04.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	17.04.2015

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Sp_Wa/2015-16 17.04.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	17.04.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2013	2014	2015	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1263	1264	1265	
4	Weight of saturated surface dry aggregate in air	W_3 g	2006	2007	2008	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	743	743	743	
6	Weight of oven dried aggregate	W_4 g	1992	1993	1994	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.681	2.682	2.684	2.682
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.733	2.734	2.735	2.734
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.70%	0.70%	0.70%	0.70%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Bitumen/2015-16 17.04.2015

BITUMEN DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
NAME OF THE WORK	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
SAMPLE I/D	Roads in HMT Layout, Ward No.09, BBMP, Bangalore.
DATE OF TESTING	17.04.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	473
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	27.00
7. Bitumen content in %	5.20	5.40
8. Average	**5.30**	

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Bitumen/2015-16 17.04.2015

GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
NAME OF THE WORK	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
SAMPLE I/D	Roads in HMT Layout, Ward No.09, BBMP, Bangalore.
DATE OF TESTING	17.04.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	26.35	5.56	5.56	94.44	90-100
4.75	262.5	55.38	60.94	39.06	35-51
2.36	55.15	11.64	72.57	27.43	24-39
1.18	46.36	9.78	82.35	17.65	15-30
0.3	25.15	5.31	87.66	12.34	9-19
0.075	33.25	7.01	94.68	5.32	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	35.25	7.45	7.45	92.55	90-100
4.75	262.8	55.56	63.01	36.99	35-51
2.36	49.36	10.44	73.45	26.55	24-39
1.18	43.15	9.12	82.57	17.43	15-30
0.3	23.12	4.89	87.46	12.54	9-19
0.075	29.56	6.25	93.71	6.29	3-8

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/AGG/2016-17 17.04.2015

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	17.04.2015

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	365	7.0	6.95	93.05	90-100	
4.75	2855	54.4	61.33	38.67	35-51	
2.36	625	11.9	73.24	26.76	24-39	
1.18	410	7.8	81.05	18.95	15-30	
0.3	365	7.0	88.00	12.00	9-19	
0.075	350	6.7	94.67	5.33	3-8	

Total Weight of Sample: **5350** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	315	5.9	5.89	94.11	90-100	
4.75	2750	51.4	57.29	42.71	35-51	
2.36	635	11.9	69.16	30.84	24-39	
1.18	405	7.6	76.73	23.27	15-30	
0.3	495	9.3	85.98	14.02	9-19	
0.075	535	10.0	95.98	4.02	3-8	

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Stability/2015-16 17.04.2015

TEST REPORT ON STABILITY OF MIX

Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk.
Name of the Work	:	Improvements & Asphalting to HMT Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	:	EE/BTP/BBMP/E-PMT/08(16524)WO/322/2014-15 Dated: 23.02.2015
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	17.04.2015

The results of the tests conducted on the Semi Dense Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-16)
1	Marshal Stability, Kn	8.35	8.90	8.2 Kn (min)
2	Marshal flow, mm	2.85	3.10	2 – 4
3	Percent air voids in Mineral Aggregate	3.25	4.15	3 – 5
4	Voids in Compacted Mix	13.80	13.95	13 – 15
5	Percent Voids filled with Bitumen	66.50	67.25	65 - 78
6	Density, g/cc	2.27	2.28	--

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